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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,678	10/11/2001	Kiyoshi Kumata	70840-56589	9445

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EXAMINER	
LEE, RICHARD J	
ART UNIT	PAPER NUMBER
2621	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/06/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/975,678	KUMATA ET AL.	
	Examiner	Art Unit	
	Richard Lee	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 November 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The request filed on November 22, 2006 for a Request for Continued Examination (RCE) is acceptable and a RCE has been established. An action on the RCE follows.

2. The applicants' arguments from the amendment filed November 22, 2006 have been noted and considered, but are deemed moot in view of the following new grounds of rejections.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-11, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi of record (2000-128031) in view of Katta et al of record (US 2004/0085447 A1) and Malkin et al (6,704,048).

Satoshi discloses a drive recorder, safety drive support system, and anti-theft system as shown in Figures 6-10, and 12, and substantially the same surround surveillance system mounted on a mobile body for surveying surroundings around the mobile body (see Figure 7) as claimed in claims 1, 2, 4, 5, 8, 10, 11, 15, and 17, comprising substantially the same omniazimuth visual system (see 12 of Figure 7), the omniazimuth visual system including at least one omniazimuth visual sensor (i.e., 4 of Figure 7 and see Abstract) including an optical system capable of obtaining an image with an omniazimuth view field area therearound (i.e., vision sensor 12 can observe 360 degrees around the vehicle, thereby providing an omniazimuth view field area therearound, see Abstract) and capable of central projection transformation of the image into an optical image, and an imaging section (i.e., 4, 8 of Figure 7) including an imaging lens for converting the optical image obtained by the optical system into image data; an image processor

(i.e., 40 of Figure 7) for transforming the image data into at least one of panoramic image data and perspective image data (i.e., vision sensor 12 can observe 360 degrees around the vehicle, thereby providing a panoramic image, see Abstract); a display section (i.e., 48 of Figure 7) for displaying one of a panoramic image corresponding to the panoramic image data and a perspective image corresponding to the perspective image data; wherein the optical system includes a hyperboloidal mirror (i.e., 8 of Figure 7) which has a shape of one sheet of a two-sheeted hyperboloid, an optical axis of the hyperboloidal mirror being identical with an optical axis of the imaging lens, and the principal point of the imaging lens being located at one of focal points of the hyperboloidal mirror (see 4, 8 of Figure 7 and Abstract); wherein the at least one omniazimuth visual sensor is located such that a bird's-eye image of the mobile body and surroundings thereof is transformed into the image data (see 4 of Figure 7 and Abstract); the display section (i.e., the display section 48 displays a 360 degree coverage around the vehicle, which includes an image in a direction opposite to a moving direction of the moving body as claimed, see Abstract) displays an image seen in a direction opposite to a moving direction of the mobile body; wherein the image processor transforms image data corresponding to a first area within the omniazimuth view field area around the optical system into first perspective image data (i.e., as provided by 40 of Figure 7, see Abstract); wherein the optical system is positioned such that an optical axis of the optical system is perpendicular to a moving direction of the mobile body (see 12 of Figure 9); wherein the display section simultaneously displays an image seen in a direction opposite to a moving direction of the mobile body and an image seen in a direction which is not identical or opposite to the moving direction of the mobile body (i.e., the 360 degree of coverage around the vehicle provides such simultaneous display, see Abstract);

wherein the mobile body is a vehicle (see Figure 9 and Abstract); wherein the image processor includes a storage section (i.e., 42 of Figure 7 and see Abstract) for storing mobile body image data, wherein the mobile body image data is image data obtained by capturing an image of the mobile body, and the display section displays based on the combined image data a perspective image including the image showing the mobile body (i.e., sensor 12 provides a 360 degree coverage around the vehicle as well as the driver, thereby providing the combination of the mobile body image data and the perspective image data, see Abstract).

Satoshi does not particularly disclose, though, the followings:

(a) a display control section for controlling the display section, wherein the display section simultaneously or selectively displays the panoramic image and the perspective image, wherein in response to control by the display control section, the display section displays an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a displayed image on the display screen as claimed in claims 1, 3, and 9;

(b) wherein in response to control by the display control section, the image processor transforms image data corresponding to a second area within the omniazimuth view field area around the optical system which does not overlap with the first area into a second perspective image data which does not coincide with the first perspective image data, wherein the second area is identical to an area which is obtained by performing at least one of translational transfer processing and zoom-in/zoom-out processing on the first area as claimed in claims 6 and 7;

(c) the image processor combines the mobile body image data from the storage section with the perspective image data derived from the optical system as claimed in claim 15; and

(d) the display section displaying a perspective image which is panned or tilted corresponding to the perspective image data, and wherein the at least one omniazimuth visual sensor is stationary with respect to the mobile body, such that the perspective image, which is panned or tilted corresponding to the perspective image data, is obtained by transforming the image data obtained from the optical image taken by the at least one omniazimuth visual sensor as claimed in claim 1.

Regarding (a) and (b), Katta et al discloses an on-vehicle image display apparatus as shown in Figures 1, 3-6, and 9, and teaches the conventional use of a display control section for controlling the display section (see page 6, section [0073]), wherein the display section simultaneously or selectively displays the panoramic image and the perspective image (i.e., switching unit 401 of Figure 9 has the capability to select images from among 6 images, the images including panoramic and perspective images, and Figure 4 shows the simultaneous display of panoramic and perspective images, see page 6, sections [0069], [0071], [0073], [0074], page 7, sections [0077], [0078], page 8, sections [0086], [0087]). Therefore, it is considered obvious to use the display control section of Katta et al so that, in response to control by the display control section, the display section of Satoshi may display an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a displayed image on the display screen as claimed, if such control of the display were not already within Satoshi. In addition, Katta teaches the particular image processings involving the transformation of image data corresponding to a second area within an omniazimuth view field area around the optical system which does not overlap with the first area into a second perspective image data which does not coincide with the first perspective image

data, wherein the second area is identical to an area which is obtained by performing at least one of translational transfer processing and zoom-in/zoom-out processing on the first area (see page 8, sections [0086], [0087], page 9, section [0097], page 10, sections [0101], [0102]). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi and Katta et al in front of him/her and the general knowledge of display controls and image transformations, would have had no difficulty in providing the display control section as taught by Katta et al for simultaneously or selectively displaying the panoramic and perspective images of Satoshi and so that the display section of Satoshi may display an image showing the mobile body on a display screen of the display section such that the mobile body is shown at a predetermined position on a displayed image on the display screen as well as the image transformations involving the zoom-in/zoom-out processing as taught by Katta et al for the first area of Satoshi for the same well known display control and image transformation for manipulation of images for intended and better viewing purposes as claimed.

Regarding (c), it is noted that though the image processor 40 of Figure 7 of Satoshi combines mobile body image data with perspective image data, as provided by the sensor 12 of Figure 7, Satoshi does not teach the image processor combining the mobile body image data from the storage section with the perspective image data derived from the optical system. The Examiner takes Official Notice that the particular use of a storage section for buffering the mobile body image data is old and well recognized in the art. Therefore, it is considered obvious to provide a storage section before the processor 40 of Satoshi et al to thereby provide the buffering of mobile body image data and so that the processor 40 may ultimately combine the

mobile body image data from the storage section with the perspective image data derived from the optical system.

Regarding (d), Malkin et al discloses an adaptive electronic zoom control system as shown in Figure 2, and teaches the conventional display capabilities of images generated from the panning and tilting of the camera, as well as the use of a stationary camera such that the perspective image that is panned or tilted corresponding to the perspective image is obtained by transforming the image data obtained from the optical image taken by the sensor (see column 1, lines 29-62). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi, Katta et al, and Malkin et al references in front of him/her and the general knowledge of the display of desired camera positioned images, would have had no difficulty in providing the panning and tilting of the camera images with the use of a stationary camera system of Malkin et al as part of the display within Satoshi for the same well known display of the desired images from the camera purposes as claimed.

5. Claims 12-14 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi, Katta et al, and Malkin et al as applied to claims 1-11, 15, and 17 in the above paragraph (4), and further in view of Tuck of record (4,772,942).

The combination of Satoshi, Katta et al, and Malkin et al discloses substantially the same surround surveillance system as above, further including the vehicle including a first bumper provided at a moving direction side of the vehicle and a second bumper provided at a side of or the vehicle opposite to the moving direction side (see Figures 9 and 21of Satoshi) as claimed in claim 12.

The combination of Satoshi, Katta et al, and Malkin et al does not particularly at least one omniazimuth visual sensor includes a first omniazimuth visual sensor placed on the first bumper and a second omniazimuth visual sensor placed on the second bumper, wherein the first omniazimuth visual sensor is placed on one of a right end and a left end of the first bumper with respect to the moving direction of the vehicle, and the second omniazimuth visual sensor is placed on one end of the second bumper which is diagonal to the end of the first bumper where the first omniazimuth visual sensor is placed with respect to a body of the vehicle; the display section displays an image obtained by combining a first perspective image derived from the first omniazimuth visual sensor and a second perspective image derived from the second omniazimuth visual sensor; and wherein, when the display section displays a perspective image of an overlapping region between a display region of a perspective bird's-eye image of the mobile body and surroundings thereof which is obtained through the first omniazimuth visual sensor and a display region of a perspective bird's-eye image of the mobile body and surroundings thereof which is obtained through the second omniazimuth visual sensor, the display section displays based on control by the display control section a perspective image derived from one of the first omniazimuth visual sensor and the second omniazimuth visual sensor as claimed in claims 12-14 and 19. It is noted that Katta et al does teach the particular use of a plurality of first sensors placed on a first bumper (i.e., 2, 6 of Figure 1, and see Figure 4 of Katta et al) for providing an omniazimuth forward view of the vehicle as well as a plurality of second sensors (i.e., 3-5 of Figure 1 of Katta et al), with one being placed on a second bumper (i.e., 4 of Figure 1 of Katta et al) for providing an omniazimuth backward view of the vehicle, the second sensor 4 being place on one end of the second bumper which is diagonal to

the end of the first bumper where the first sensor is place with respect to a body of the vehicle (see Figure 1 of Katta et al), the display section displays an image obtained by combining a first perspective image derived from the first plural sensors and a second perspective image derived from the second plural sensors, with the particular display of an overlapping region between a display region obtained through first sensors and a display region obtained through second sensors (see Figure 4 of Katta et al). Katta et al does not particularly teach at least one omniazimuth visual sensor including a first omniazimuth visual sensor placed on the first bumper and a second omniazimuth visual sensor placed on the second bumper, and the particular display section displaying an image obtained by combining a first perspective image derived from the first omniazimuth visual sensor and a second perspective image derived from the second omniazimuth visual sensor, with the display section displaying a perspective image of an overlapping region between a display region obtained through the first omniazimuth visual sensor and a display region obtained through the second omniazimuth visual sensor as claimed. However, Tuck discloses a display system having a wide field of view as shown in Figures 3 and 4, and teaches the conventional use of a single camera over a plurality of cameras to provide a wide field of view (see column 5, lines 24-35), and the particular display of overlapping images from the first and second omniazimuth visual sensors (see Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi, Katta et al, Malkin et al, and Tuck references in front of him/her and the general knowledge of panoramic and wide field of viewing systems, would have had no difficulty in providing the single camera omniazimuth field of view and display system of Tuck in place of the plural camera systems 2-6 of Katta et al and the thus modified single camera system to be provided

within Satoshi so that at least one omniazimuth visual sensor including a first omniazimuth visual sensor is placed on the first bumper and a second omniazimuth visual sensor is placed on the second bumper of Satoshi for the same well known reduction of cameras, wide field of viewing, and display of overlapping images from the first and second omniazimuth visual sensors purposes as claimed.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi, Katta et al, and Malkin et al as applied to claims 1-11, 15, and 17 in the above paragraph (4), and further in view of Nakamura of record (6,314,364).

The combination of Satoshi, Katta et al, and Malkin et al discloses substantially the same surround surveillance system as above, but does not particularly disclose wherein the mobile body image data is image data created by using computer graphics software as claimed in claim 16. The particular use of computer graphics software for the creation of images, in general is however old and well recognized in the art, as exemplified by Nakamura (see CPU 6 of Figure 1, column 2, lines 59-67, column 3, lines 31-40). Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi, Katta et al, Malkin et al, and Nakamura references in front of him/her and the general knowledge of computer generated images, would have had no difficulty in providing the computer generated image system with computer graphics software control as taught by Nakamura within the surround surveillance system of Satoshi to thereby create computer graphics mobile body image data for the same well known graphics control of images for further enhancement/manipulations purposes as claimed.

7. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satoshi, Katta et al, and Malkin et al as applied to claims 1-11, 15, and 17 in the above paragraph (4), and further in view of Schofield et al of record (6,891,563) and King et al of record (6,422,062).

The combination of Satoshi, Katta et al, and Malkin et al discloses substantially the same surround surveillance system as above, but does not particularly disclose a temperature measurement section for measuring an environmental temperature of the mobile body, and when the environmental temperature measured by the temperature measurement section is equal to or lower than a predetermined temperature, the display section displays a perspective bird's eye image of the mobile body and surroundings thereof after the mobile body becomes movable as claimed in claim 18. However, King et al discloses an integrated glass fog sensor unit as shown in Figure 2, and teaches the conventional use of temperature measurement sections (i.e., 20, 22, or 24 of Figure 2, and see column 1, line 9 to column 2, line 3, column 2, lines 40-60) for measuring an environmental temperature of a mobile body (see vehicle of Figure 1) for detection of fog on the windshield of a vehicle. It is to be noted that King et al does teach the particular use of environmental temperature sensors (i.e., 20, 22, or 24 of Figure 2), and the comparison of the environmental temperature section wherein when the environmental temperature measured by the temperature measurement section (i.e., glass surface temperature 56 as provided by glass temperature sensor 20, see column 3, lines 25-27) is equal to or lower than a predetermined temperature (i.e., dew point temperature 54 is considered the predetermined temperature, see column 3, lines 25-27), then the glass surface 14 of King et al is either determined to be fogged or will eventually fog. King et al however fails to disclose the specifics of the display section displaying a perspective bird's eye image of the mobile body and surroundings thereof after the

mobile body becomes movable in response to the temperature measurement section comparison as claimed. However, Schofield et al discloses a vehicular vision system as shown in Figures 1-3, and teaches the conventional use the display of different perspectives surrounding a driver of a vehicle so as to aid the driver especially in adverse driving conditions such as fog (see Figure 3 and column 5, lines 49-65, column 19, lines 16-29). And since Schofield et al teaches the particular display of the surroundings of a vehicle to a driver which is useful in fog conditions, it is considered obvious that such display of Schofield et al may be provided in response to the temperature measurement comparisons within King et al since King et al also teaches the desire to determine/predict fog based upon the temperature measurement comparisons for further actions. It is to be noted that Schofield teaches a composite image display as shown in Figure 3, such composite image display is not a perspective bird's eye image of the mobile body and surroundings thereof after the mobile body becomes movable, as claimed. However, the display of a perspective bird's eye image of the mobile body and surroundings thereof is shown within Satoshi (see 48 of Figure 7 and Abstract of Satoshi), and it is considered obvious to substitute the display of Satoshi for the display of Schofield et al so as to produce an overall view of the surroundings of the vehicle. Therefore, it would have been obvious to one of ordinary skill in the art, having the Satoshi, Katta et al, Malkin et al, King et al, and Schofield et al references in front of him/her and general knowledge of the display of surrounding images of a vehicle for a driver, would have had no difficulty in providing the perspective bird's eye image of the mobile body and surroundings thereof as taught by Satoshi in place of the composite display of Schofield et al so that the display section in the modified Schofield will display a perspective bird's eye image of the mobile body and surroundings thereof after the mobile body becomes

movable when the environmental temperature as provided by King et al measured by the temperature measurement section 56 of King et al is equal to or lower than a predetermined temperature 54 of King et al, and providing the temperature measurement section 20, 22, or 24 of King et al for measuring an environmental temperature of a mobile body within the surround surveillance system of Satoshi, Katta et al, and Malkin et al for the same well known prediction and detection of fog on windshields of vehicles and display aid for a driver in response to adverse conditions such as fog purposes as claimed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard Lee whose telephone number is (571) 272-7333. The Examiner can normally be reached on Monday to Friday from 8:00 a.m. to 5:30 p.m, with alternate Fridays off.

RICHARD LEE
PRIMARY EXAMINER

Richard Lee/rl

2/2/07